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ABSTRACT

This study examined cooperative learning (CL) programs that were successfully meeting the needs of gifted students and identified factors critical to this success. Of 19 programs nominated as models of cooperative learning, 5 sites were selected and visited: Wilton Public Schools, Connecticut; Glenville Elementary School, Connecticut; Mary Taylor Middle School and Camden-Rockport High School, Maine; Pinehurst Middle School, North Carolina; and Harford Heights Elementary School, Maryland. Factors found to be critical or very important at all five sites were leadership from teachers, staff development from both cooperative learning experts and "in-house" experts, enthusiasm from teachers and students, and the use of cooperative learning in classes where top students were grouped by ability/performance. Several strategies had been specifically developed to meet the needs of gifted students, including, among others: differentiating tasks by complexity, using open-ended or creative tasks, incorporating independent work, and allowing for self-pacing. In settings where CL was used with students grouped by ability, gifted students seemed to thrive. In heterogeneous settings, gifted students identified several concerns, such as having to fill the "teacher" role, doing "all" the work, receiving lower grades, doing "easy stuff," and feeling uncomfortable if they appeared "too smart." In spite of these concerns, students voiced strong support for CL. A cooperative learning checklist is appended. (Contains 15 references.) (JDD)

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Gifted Education Policy Studies Program

**COOPERATIVE LEARNING AND
GIFTED STUDENTS: REPORT ON
FIVE CASE STUDIES**

Mary Ruth Coleman,
James J. Gallagher,
& Susanne M. Nelson

**The University of North Carolina
at Chapel Hill**

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October, 1993

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This research was conducted by the Gifted Education Policy Studies Program at the University of North Carolina at Chapel Hill. The views expressed in this report are those of the authors. These views are not necessarily shared by the U.S. Department of Education, nor the Office of Educational Research and Improvement, which provided funding under grant #R206A00596.

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**Cooperative Learning and Gifted Students:
Report on Five Case Studies**

EXECUTIVE SUMMARY

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The Gifted Education Policy Studies Program (GEPSP) of the Frank Porter Graham Child Development Center, University of North Carolina at Chapel Hill, was established to seek solutions to two issues related to full educational services for gifted students. These issues were: (a) state and local policies regarding the identification of gifted students from special populations; and (b) the role of gifted education within the school reform movement (cooperative learning and the middle school). The study reported here is the second part of our work focused on cooperative learning (CL).

The first CL study involved a national survey of attitudes surrounding the use of CL with gifted students (Gallagher, Coleman, & Nelson, 1993). A comparison of responses from educators belonging to CL associations and those who were members of associations for gifted education revealed widely differing perspectives on the value of using CL with gifted children. These responses were polarized; proponents of CL strongly supported its use with gifted students and advocates of gifted education clearly opposed it. This polarization of feelings, in spite of very little research on the actual use of CL with gifted students, concerned us. The one area of agreement between the

groups was that most teachers have not had adequate professional development in the use of CL to be able to make optimal use of this method.

The purpose of the current study was to examine CL programs that were successfully meeting the needs of gifted students and to identify factors that were critical to this success. We hoped to learn how CL and gifted education could work together to successfully bridge the apparent gulf between these groups. Our first task for this study was to locate CL programs that were accomplishing this with their gifted students.

Nominations of programs were solicited from professional organizations, state departments of education, and experts in the CL field. We received 19 nominations that met our criteria. Our goal was to identify a sample of the best programs representing the major models for CL (Slavin, Johnson & Johnson, and Kagan). To ensure that the programs selected were "authentic," we consulted CL experts who had worked with their development. Five sites were selected.

Each site visit encompassed a two-day period and involved interviews with key people (the CL resident experts, principals, and gifted education teachers), focus group discussions (teachers and students), classroom observations, and document reviews. Each visit was attended by at least two staff members, and one staff member participated in all five visits.

Following the site visits, factors believed to be influential to the programs' effectiveness were identified. These factors included: leadership; commitment to gifted students; staff development; availability of resources; attitudes within classrooms; strategies to differentiate CL for gifted students; social dynamics within CL; and an evaluation of services. These factors were rated for each site. A four-point scale (from "critical" to "insignificant") was used to rate each factor according to its influence. The factors found to be critical or very important at all five sites were: leadership from teachers; staff development from both CL experts and "in-house experts"; enthusiasm

from teachers and students; and the use of CL in classes where top students were grouped by ability/performance.

The single factor that stood out for all the sites was the role of teachers as leaders and the provision of ongoing "in-house" support for the use of CL. This created an atmosphere of enthusiasm that seemed contagious. At all of the sites, CL was used in honors and advanced classes; it was a part of the services provided for gifted students. The CL experiences in these settings were seen as highly satisfactory by the gifted students.

Other factors varied in their influence from program to program. The leadership of school and central office administration, a commitment to gifted students, CL support groups, resources available, level of trust, and the role of social dynamics in the CL program ranged from "critical" to "somewhat important."

Several strategies had been specifically developed to meet the needs of gifted students. These strategies included: differentiating tasks by complexity; using open-ended or creative tasks; incorporating independent work; allowing for self-pacing (e.g., Slavin's Team Assisted Instruction); offering challenging bonus questions; forming expert groups; using interest-centered activities; forming cluster groups according to ability; using jigsaw methods; assigning specific roles to gifted students; forming cross-grade groups; using the Team Games Tournament model; and allowing students to select their own groups.

The programs visited clearly showed how CL can work with gifted students. In settings where CL was used with students grouped by ability, gifted students seemed to thrive. In heterogeneous settings, gifted students identified several concerns. These included: having to fill the "teacher" role; doing "all" the work; receiving lower grades; doing "easy" stuff; and feeling uncomfortable if they appeared too "smart." In spite of these concerns, when asked what they would do if CL was going to be abolished, they protested vigorously.

Students identified as gifted, as well as those not so identified, voiced strong support for CL. Students were clearly motivated to higher levels of involvement through their participation in CL groups.

Each of the programs we visited had made a major commitment to the use of cooperative learning. Their programs had evolved over time with strong support and resources. The needs of gifted students had been successfully addressed throughout the development of the cooperative learning program.

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One of the major reform efforts that has been reshaping our schools is the use of cooperative learning (CL). Although there are many forms of CL, each with its own particular emphasis, these differing forms share some basic beliefs. With cooperative learning, students (in groups of two to six) work together to complete a task, solve a problem, or create a product. Cooperative learning differs from the "small group" work of the past by emphasizing: (a) positive interdependence, (b) individual accountability, (c) group processing, (d) the development of social skills, and (e) face-to-face interaction of students (Johnson, Johnson, & Holubec, 1990). The three most widely-used CL models were developed by Robert Slavin (1980), David and Roger Johnson (1989), and Spencer Kagan (1989/1990). These respective models differ somewhat in their methods.

Slavin's Model

Robert Slavin's model emphasizes shared responsibility for group goals, along with individual accountability for content mastery. Student support teams with inter-team competitions make up the backbone of Slavin's methods, which include: Student Teams Achievement Division (STAD), Team Games Tournaments (TGT), Team Accelerated Instruction (TAI), and Cooperative Integrated Reading and Comprehension (CIRC). With all of these methods, teams are formed heterogeneously to study, check, and support each others' learning. Individual quizzes and tests are given to check for mastery. Points are awarded to the teams for individuals improvement, effort, and sportsmanship (Slavin, 1988).

Johnson's Model

The CL model developed by David and Roger Johnson emphasizes the socialization skills needed for students to work cooperatively. Students are placed in heterogeneous CL groups and given an assignment to complete. Individual group members are responsible for specific roles within their group. One student may be the

recorder; another student may be the materials person or the reporter. In most groups, there is also one student designated as the "praiser" or "encourager." This student's task is to compliment group members for cooperative efforts and assist with the smooth operation of the group. Students rotate through these roles so that each student, at some time, fills each role. Group grades are, in large part, determined by the amount of cooperation among group members. Rewards are given for effective socialization (Johnson & Johnson, 1990).

Kagan's Model

Spencer Kagan's CL model uses a variety of "structures" to organize social interactions among students. Teams are formed heterogeneously, and students are taught structures to facilitate their completion of the assigned tasks. Examples of these structures include: "Roundrobin" (each student shares in turn); "Numbered Heads Together" (students consult each other to ensure that all group members know the answer to a question); "Think-Pair-Share" (students think to themselves, discuss with a partner, and share with their group); and "Jigsaw" (each student becomes an expert on a topic by working with members from other teams. When they return to their home team, they share their information). Students are assessed individually, but group rewards foster positive interdependence (Kagan, 1989/1990).

CL and Gifted Students

Most CL models emphasize that student groups should be heterogeneous for the majority of the day (Sharan, 1990; Slavin, 1987; Johnson & Johnson, 1991). This belief has created difficulties when we look at CL as a strategy to meet the needs of gifted students (Allan, 1991; Robinson, 1990). These concerns have been intensified by the use of CL programs to justify the reduction or elimination of additional services for gifted students (Feldhusen, 1991; Slavin, 1991; Gallagher, Coleman, & Nelson, 1993).

Little research exists on the effectiveness of CL with gifted students in either heterogeneous or homogeneous settings (Slavin, 1990). In spite of this, strongly polarized positions have been taken by proponents of cooperative learning and gifted education. The authors recently surveyed random samples of members from national professional associations (e.g., International Association for the Study of Cooperation in Education, The Association for Supervision and Curriculum Development, the National Association for Gifted Children, The Association for Gifted). The results of that survey indicated that opinions on the use of CL with gifted students were sharply divided. Proponents of cooperative learning felt strongly that CL could essentially meet all the needs of gifted learners, while proponents of gifted education responded negatively toward the merits of CL for gifted students (Gallagher, Coleman, & Nelson, 1993).

The study reported here was designed in response to our concerns over the gulf that seemed to be separating proponents of CL and educators particularly interested in gifted education. The purpose of this study was to locate and describe programs that were successfully meeting the needs of gifted students within a cooperative learning framework. Through this, we hoped to look at best practices and to identify those variables essential for CL to be used successfully with gifted students.

Procedure

The first task was to identify cooperative learning programs successfully meeting the needs of gifted students. Our goal was to select programs representing the three major CL models (the models proposed by Slavin, Johnson and Johnson, and Kagan) located in a variety of settings (including urban, rural, and suburban). The selected sites were each verified as an "authentic" implementation of the model being used -- through direct communication with Slavin, the Johnsons, and Kagan. With our available resources, we were able to visit five schools. Two of the five were formed using Slavin's model; two used essentially the Johnson and Johnson model; one used basically

Kagan's approach. In addition, a pilot study was conducted on a site using the Kagan method. Although these school systems were each very strongly influenced by one of these three CL approaches, some overlapping did occur. Specific approaches overlap from one approach to another (e.g., use of "Jigsaw" occurs in both Kagan's model and Johnson & Johnson's) and school systems sometimes applied techniques borrowed from different approaches.

Nominations of Programs

We were looking for schools that had combined the best of CL with appropriate support for gifted students. The criteria used for nominations is given in Figure 1. While we did not expect each program to encompass all these elements, we hoped to locate programs that had addressed most of the criteria.

The markers that we felt would indicate a successful blending of CL goals with goals for gifted students were the presence of:

1. advanced and sophisticated content presented at a high level of challenge;
2. opportunities for gifted students to work together in CL groups;
3. attention to the affective development of gifted students;
4. collaborative tasks requiring contributions from all group members;
5. flexible pacing to allow students to learn at their own rate;
6. staff development support on the needs of gifted learners; and
7. some evaluation strategies to assess program goals.

Nomination forms were sent to board members of the International Association for the Study of Cooperation in Education (IASCE), the Association for Supervision and Curriculum Development (ASCD), the National Association for Gifted Children (NAGC), and The Association for Gifted (TAG). An announcement was placed in the ASCD Cooperative Learning Network Newsletter, and the State Directors for Gifted Programs were also requested to assist with nominations. In addition, key people within the CL

movement were sent the nomination information and encouraged to share it with potential participants. As a result of these efforts, we received 19 nominations.

Figure 1

**Criteria for Nominating Schools Successfully Combining
Cooperative Learning with Programs for Gifted Students**

1. The importance of student-centered learning, as opposed to viewing the teacher as the "sole disseminator of knowledge."
2. The importance of developing leadership skills and abilities in students.
3. The importance of problem-solving and decision-making within the curriculum.
4. The importance of allowing students to explore ideas together and to learn to value each other's understandings.
5. The importance of developing each student's creativity.
6. The importance of addressing "real problems" within the curriculum.
7. The importance of teaching students to work cooperatively together.

Selection of Sites

In addition to the selection criteria, another guiding principle was balancing the models and locations to ensure that the sites reflected as much diversity as possible. In cases where we were not knowledgeable about the services for gifted students, we requested additional information from school personnel on how gifted students' needs were addressed. As a result of this process, five sites were selected for site visits. At three of the locations, we visited one school (two were elementary schools and the other was a middle school). At another site, both a middle school and a high school were visited. At the fifth site, the entire school system was included.

Site Visits

The visits, completed in the Fall and Winter of 1992, consisted of two days at each site. A team of 2-3 researchers visited each location. One of the investigators was able to participate in all of the site visits, while two additional researchers alternated participation. During the visits, we sought to gather a variety of information that would reveal how the needs of gifted students were being met within the CL framework. We wanted to know how the CL program was initiated, what the CL program was doing within the curriculum, how gifted students were served, and what the critical factors for success were. Our goal was to create as comprehensive a picture of the sites as possible. To accomplish this, we used multiple information sources and data collection methods.

Interviews with Key People. Interviews were conducted with key people who were responsible for the development and implementation of the CL program and/or the program for gifted students. At each site, the people interviewed varied depending on who the key players were. In all cases, we interviewed principals, CL teachers, and gifted specialists. In some locations, we also spoke with central office personnel. An interview schedule was developed to guide the questions, but it was not followed rigidly; the conversation was allowed to flow naturally.

Focus Groups. Small discussion groups consisting of 8-10 participants were conducted with separate groups of teachers and students. The student focus groups were made up of both gifted students and students who had not been so identified, but gifted and non-gifted students were assigned separate focus groups. This separation allowed us to compare the unhindered reactions of both groups of students to the use of CL in heterogeneous and homogeneous settings. Although a set of questions was used to guide the discussions, the conversation was allowed to follow its own path. The

protocol questions were used as prompts to ensure that all the essential information was collected. Each focus group lasted approximately 45 minutes.

Observations. A large part of the site visit involved direct observation of classes using the CL methods. We developed a checklist to give some consistency to these observations and to allow us to compare classroom practices across the sites. A review of the literature helped us to develop an observation checklist. Six areas (see Appendix A) were incorporated into our list:

1. The Classroom Climate/Environment. A CL environment refers to the visual evidence of its existence; the climate is the atmosphere during a CL lesson.
2. The structure of the CL activity. This refers to grouping by ability levels and the physical arrangement of students.
3. The structure of the lesson being taught. This describes the actions of the teacher toward establishing and maintaining a CL lesson.
4. The cognitive level of the activity. The descriptors in this section focus on the kinds of questions and thinking required within the CL structure.
5. The teacher's roles and behaviors. These refer to the teacher's participation in executing and evaluating the CL lessons.
6. The students' behaviors. These observations are directed to how the students participate in CL lessons and how well students evaluate their own effectiveness.

To make the checklist more user friendly, the categories could be easily marked "yes," "no," or, "not observed," and space was provided for extended comments.

The items on the checklist were written to capture the complexity within the lesson being taught. Observers could mark that both "high" and "low" level content had

been included, or that both heterogeneous and homogeneous grouping had been used in the same lesson.

A pre-observation form, called the "teacher questionnaire," was provided to the classroom teacher. This form asked for information on the goals of the lesson (both cognitive and social), the placement of the lesson in the overall unit under study, and the teacher's assessment of the amount of experience the students had with CL. This was very helpful because it provided the context in which the lesson took place and allowed observers to better understand what was going on in the lesson. The teacher questionnaire and the observation checklist were both field-tested and revised prior to the actual study.

Document Review. In addition to the information collected on-site, we reviewed a variety of documents, including: evaluation reports, brochures, handbooks, lesson plans, articles, and program guidelines. These documents were helpful in providing details about the programs we visited.

Data Analysis

At the completion of the individual site visits, each member of the visitation team compiled his/her own field notes reflecting his/her observations. Based on these field notes, the observation checklists, and document reviews, a descriptive profile for each site was developed. These profiles were sent back to the sites for verification and comment. Minor revisions to the profile were made based on this feedback. These individual profiles are presented as part of this report. A review of these profiles allowed us to identify the key factors contributing to the success of the programs. Based on this information, we developed the cross-site analysis factors.

The factors that we identified as contributing to the success of the programs included: leadership, commitment to gifted students, staff development, availability of

resources, attitudes within the classrooms, strategies to differentiate CL for gifted, social dynamics, and program evaluations (see Figure 2).

Figure 2

Potentially Influential Factors in Cooperative Learning Programs with Gifted Students

Leadership could come from a variety of sources (central office, school site administration, teachers, outside advocates). Leadership is some force helping guide the development of programs and ensuring implementation.

Commitment to Gifted Students was seen as either stemming from the central office or the school site. It meant a strong advocacy for gifted students and a willingness to invest specifically in their educational programming.

Staff Development encompassed professional development (i.e., seminars on cooperative learning or on teaching gifted students), as well as ongoing support activities.

Availability of Resources dealt with material/physical, expertise/human, and time the school could use in their CL programming.

Attitude Within the School, while difficult to define, was easily perceived. We looked at the enthusiasm of students and teachers, the level of trust evidenced in communication patterns, and the overall commitment (student, faculty, community, etc.) to the school.

CL Differentiation for Gifted Students related to meeting the needs of gifted learners. Several strategies were included, such as: homogeneous CL grouping in regular classes, individual assignments in CL groups, flexible pacing, self-selection of groups, and complexity of tasks.

Social Dynamics involved strategies specifically designed to enhance social interactions among students. These included the overt teaching of social skills, assigning social roles, using team and class "building" activities, and evaluating social skills.

Evaluation included both formal and informal attempts to assess the effectiveness of the CL services for gifted students.

A four-level rating scale was used to rate the level of influence each factor had on the success of the program at each site. The ratings were based on the following criteria:

- A. The factor was critical to the success of the program, without the presence of this factor it would be doubtful that the program could succeed;
- B. The factor was important in shaping the programs success;
- C. The factor had a moderate level of influence on the programs outcome, but the role this factor played was limited;
- D. The factor was insignificant and had very little to do with the programs success.

The rating for each program was accomplished through staff discussion and consensus. During these discussions, considerable time was taken to validate the ratings based on field notes, documents, and the profiles for each site. There was substantial agreement between the visiting team members; when a discrepancy occurred, it was resolved through a review of notes and discussion.

Individual Site Results

The results for each site are presented here in order to share the richness of the programs offered. These site profiles will be followed by the cross-site analysis.

Wilton Public School

Description of Wilton Public Schools

Wilton is a small New England township located in Fairfield County, Connecticut. The town serves as a "bedroom" community for New York City, and many of the families had at least one member who commuted to the city daily. The education levels of the families in Wilton were high; it was the norm for both parents to have completed college and often some graduate work. The economic status of the families was also high; the

median price of a home in Wilton was \$460,000. The student body in the Wilton Public Schools reflected the overall community demographics, with less than 1% African American and less than 7% Asian students. The mean IQ of the Wilton students was well above average. In 1992, 90% of the graduating seniors from Wilton Public Schools matriculated into universities and colleges.

The average class size was 21. The small classes were due, in part, to the shifting population pattern at Wilton. The high school had been built to house over 1800 students and, at the time of our visit, there were only 814 high school pupils enrolled. The swell of students in the early grades, however, was expected to somewhat fill these classrooms as students moved up the ranks.

The teaching faculty in Wilton was highly qualified. Over 88% had graduate degrees and many had Doctorates. Overall, the school system was characterized by a strong emphasis on academics. Bright students, well-educated, supportive parents, and a highly-qualified faculty combined with a resource-rich environment to create an almost idyllic teaching-learning setting.

Cooperative Learning

The Wilton schools were using a version of the Johnson and Johnson model of cooperative learning. CL had been implemented in Wilton under the direct guidance of Roger and David Johnson, who provided teacher preparation and ongoing consultation. In the mid 1980's, the district sent six teachers who volunteered for extensive staff development in the use of the Johnsons' CL methods. This original commitment proved to be a wise investment for the district, as these teachers became the nucleus for the use of CL district-wide.

These six teachers have remained an integral part of the system's cooperative learning implementation strategy. They have progressed through the advanced CL methods and now provide the system with a cadre of resident experts. In addition to

offering CL staff development, this group of six initiated peer coaching and support groups for teachers wishing to use CL in their classrooms.

In Wilton, we had the sense that CL was an accepted philosophy rather than just a teaching strategy. The system's administration saw CL as a reasonable way of life. While not every teacher in the district had taken CL workshops and not all teachers used CL in their classrooms, CL was clearly seen by the administration as an organizing principle for school and classroom management.

The entire school system was committed to CL. Resources had been provided to support its adoption. We were told that parents were quite supportive of this approach. Many parents saw CL as an extension of similar movements in the business community.

Services for Gifted Students

State-level budget cuts had reduced services for gifted students in many of Connecticut's school districts, and Wilton had suffered from these cutbacks. Special services for gifted students had, by and large, been eliminated by the time of our visit. This meant that the regular classroom teacher was responsible for meeting the academic needs of gifted students. When we asked what the reaction of parents had been to this reduction in services, we were told that it had been remarkably mild. This may be due to the homogeneous nature of the student body and to the high level of staff qualifications. Parents seemed to trust that their children's academic needs could be met and challenged in the classroom without additional services for gifted students.

The high school continued to offer honors classes, Advanced Placement (AP) classes, and an invitational freshman/sophomore humanities seminar for the top 30-35 students. The science classes at the high school were sorted into three tiers. Students themselves selected the level at which they wished to work.

No formal services were offered for gifted students in Wilton until they reached the high school. Elementary and middle school teachers seemed able to provide

differentiation within their classes, given the homogeneous nature of abilities within the student population and the relatively small class sizes. We were told that extended enrichment experiences were planned to begin after school and as a Saturday program. We were also told that staff development focusing on meeting the needs of gifted students within the regular classroom had already been scheduled. Given these contingencies, parents of gifted children seemed satisfied with the educational opportunities available for their children.

Observations of CL at Wilton

We were able to observe CL in use in several classes ranging from elementary grades through high school. The nature and focus of the activities changed somewhat as the grade level increased. In the earlier grades (K-5), the groups were smaller (sometimes pairs) and there was a strong emphasis on appropriate social strategies. In these grades, students fulfilled specific roles (e.g., reporter, recorder, encourager). They also practiced specific strategies (e.g., "six inch voices," making eye contact, and using student names during conversations).

As the students progressed into higher grades, there appeared to be less emphasis on the markers of CL. Students seemed to evolve more naturally into appropriate roles and behaviors. In the high school classes, the students moved easily into CL work with no specific guidelines. The teachers indicated to us that, by the upper grades, most of the students were so accustomed to this way of working that little formal structure was needed for cooperative learning.

With the exception of the 9th/10th grade humanities seminar, all of the classes we observed were heterogeneous. However, this heterogeneity must be understood within the context of a fairly homogeneous student body whose ability levels fell into the upper quartile of aptitude. Because of the nature of the student population, we did not

observe a wide range of ability levels in classes. The discussion of our observations will be organized by grade level.

CL in Elementary Classes. We observed both third- and fourth-grade classrooms. The third-grade class was involved in an activity designed to emphasize decision-making and problem-solving. Groups, made up of four students each, were attempting to rank-order a list of several causes of death and injury. To facilitate cooperation, the students were each given roles to fulfill and the guidelines for appropriate CL work were reviewed.

The class progressed in an active and orderly fashion and used "six inch" voices to keep the noise level in balance. Affection between the teacher and students was evident, with encouragement and positive reinforcement being the major thrust of their interactions. The task was a bit difficult for the youngsters, however, and they were unable to complete it within the time allotted for our stay. At the end of the lesson, the students were asked to self-evaluate their cooperation. Their accurate self-appraisal showed a clear understanding of appropriate group dynamics.

The fourth graders were engaged in a fairly sophisticated activity extending the concepts of latitude and longitude. Each group was given coordinates for an island community. The students were asked to locate their island, determine its climate and geography, and then to design an appropriate society for island inhabitants. One of the methods used to accomplish this was the jigsaw. Students were given specific "expert" roles, including geographer, political scientist, and cultural planner; we were later told that these roles had been assigned according to student abilities. The "experts" met to discuss the information needed to design their aspect of the island's community and then rejoined their CL group to put the pieces together.

In addition to the academic agenda, the students were asked to practice social skills. These included the use of "six inch" voices and praise words. At the end of the

lesson, the students evaluated their levels of cooperation and were able to accurately assess their strengths and weaknesses.

CL in the Middle School. In the middle school, we observed an eighth grade social studies class and a seventh grade "Connections" class. Connections classes, designed to bridge the communication skills with content, had replaced the traditional language arts classes at the middle school. In the social studies class, the students were engaged in a team project to show the influence of early Spanish settlements in the United States. Each group was to design and build a replica of a Spanish settlement. This was to be accomplished based on their previous research. The lesson included social skills (listening, cooperation, and team planning) although roles were not directly assigned to students.

In the connections class, the students were reviewing materials on both sides of the "animal rights" issues and were discussing the positions of each side. A visit to the zoo had sparked a debate about the captivity of animals and students had begun an investigation of animal rights that included medical and ethical practices. The rules of CL were listed on the board and students were reminded to use appropriate skills. However, no formal roles were assigned.

In both lessons, the teachers acted as facilitators, offering guidance when asked and encouragement when needed. Each teacher kept a notebook to jot down observations as the class progressed. The students were actively involved and the class proceeded with no disruptions or interferences.

CL at the High School. At the high school, we observed the humanities class, the science program, and an economics class. In the humanities class, CL groups were formed for the initial hour of the two-hour block to review the writing process. Students discussed papers they had written in a previous assignment. This activity was completed with little guidance and no formal reference to CL. The second half of the class followed a traditional lecture/discussion format.

The science program capitalized on the natural group work that accompanied science lab. Although the science faculty had not participated in formal CL instruction, they structured their classes around student groups. The chemistry class had three levels, and students determined the level of challenge at which they wished to work. This differentiation was handled through lab and evaluation strategies that were adjusted for levels of difficulty. The chemistry teachers had designed their own teaching materials; no textbooks were used.

We also observed an honors physics class, where ten students worked in collaborative groups of 3-4 to design experiments. The one rule that the science faculty all adhered to was that they did not answer student questions. Students were guided and given alternative strategies to seek information. Direct answers, however, were not likely to be offered to their inquiries. This further encouraged them to collaborate with their peers.

In the history class at the high school, students were engaged in a form of cooperative learning called the "structured academic controversy" dealing with the impact of environmentalist and economic concerns. The students were reading and analyzing articles from both environmental and business perspectives and were preparing arguments from both perspectives. As with the other classes at this level, there was less emphasis on the social aspects and more focus on the academic objectives of the lesson. The students seemed to move through the activities with an ease gained from experience.

Points of View on CL

In order to understand the use of CL with gifted youngsters, we obtained the perspectives of the administration, teachers, and students.

Administration. We interviewed several central office administrators and spoke with the principals of each of the schools. Their support for CL was strong and

unanimous. They indicated that it was much more than just a teaching strategy; they viewed it as an organizational philosophy. This support for CL included attention to the provision of adequate staff development, where possible, and planning time for teachers. The principals also indicated that CL had influenced the ways they assessed teacher effectiveness. They now included student engagement, teacher facilitation, eye contact, and classroom climate as elements to look for in effective teaching.

Teachers. We met with several teachers across the grade levels. All were extremely supportive of CL. Several indicated that, in all their years of teaching, they had seen many "fads" come and go but that CL was, in their minds, here to stay. It was seen as a way to motivate students and to revitalize the classroom interaction. The following teacher attributes were given as necessary for effective cooperative learning: willingness to share power with students, confidence in subject matter, desire to explore ideas and content in more depth, and flexibility in thinking and planning (you must be able to 'go with the flow').

The teachers indicated that CL had to be accepted voluntarily, and that it was not for everyone. They also said that a lot of energy was required to use CL successfully and that without a solid knowledge of content and additional planning time, it would be difficult to use CL. Staff development was seen as essential, and the presence of a cadre of local experts was felt to be invaluable.

Students. We had the opportunity to talk with several students from all grades. Some of these students had been identified as gifted; others had not. Their viewpoints on CL, however, were very much the same. Regardless of whether or not they had been formally identified as gifted, the students were overwhelmingly supportive of CL. Many of them could not imagine being taught any other way. They all saw the drawbacks to CL, which included: some problems getting group members to participate, getting a group grade, students who took over the group too much, and sometimes feeling like they were not moving quickly enough in their groups.

When asked, however, how they would feel if CL was going to be abolished by the school board their response was unanimous. They much preferred CL to the more traditional lecture/listen mode of instruction. "When a teacher just talks to you, you can fade out, but in a CL group you have to work" and "Other kids, who are more like you, can sometimes teach you better" were reasons given for this preference. Many of the students also mentioned that CL prepared them for later life by ensuring that they knew how to work with others and how to learn things on their own.

CL for Gifted Students. Given the homogeneous nature of the student body at Wilton, in some ways the entire system could function much like a "gifted" program. CL in these circumstances served to motivate and energize classroom interactions. The students were clearly empowered through this CL movement and saw learning as their responsibility. The staff's qualifications and abilities allowed them to work with CL strategies without losing content strength for academic achievement.

Summary

The Wilton Public Schools offered a strong, academically-oriented program that infused cooperative learning into the organizational structure of the schools and classrooms. The community itself was fairly homogeneous and highly supportive of education. An extremely well-qualified faculty joined with strong administrative and parental support to allow teachers to meet the high expectations set for students. Cooperative learning played a strong role in this effort.

Glenville Elementary School

Description of Glenville Elementary School

Glenville is located in Greenwich, Connecticut, which is primarily an affluent suburban town. There is, however, a small percentage of economically disadvantaged families. The student population of Glenville Elementary is, by and large, Caucasian,

with approximately 8.7% Asian, 4.5% Spanish, and 0.8% Black. Glenville Elementary School was a large modern facility which sat in the midst of a neighborhood of beautiful homes on large, well kept grounds. The 488 students, kindergarten through fifth grade, reflected the community's demographics.

The school was designed so that the classrooms could be restructured with movable walls. Each "pod" could become one large, two medium, or four normal sized classes. This also meant that the classrooms were somewhat open in their design, and as a result, the noise level was fairly high. In addition to the ample classroom space, the school housed a media center, equipped with a computer lab, an art room with specially designed tables and project storage areas, a music room with special acoustics, and a planetarium. The building was beautifully decorated with children's art work which was showcased in every hall.

The school climate was energetic. Students rarely "walked" through the halls; they dashed. The activity level in center areas and classrooms was high, with children in lively clusters. At times the faculty appeared a bit drained by this high level of the children's energy, but overall it seemed to be a natural part of the school's ambiance.

Cooperative Learning

Cooperative learning (CL) was first introduced at Glenville in 1983. At that time the district sponsored workshops, led by the Johnsons from Minnesota, for any teachers who wished to participate. Each participant was asked to have a "buddy" from his/her school who also took the workshop, with whom they could debrief and reflect on the ideas presented. This support system would hopefully make the CL strategies easier to implement. Several of Glenville's teachers participated in these initial sessions.

The Johnsons continued their relationship with the district by offering several workshops over the years for teachers, administrators, and parents. This strong district level commitment for staff development in CL allowed teachers to progress from

introductory classes in CL through the advanced CL program. Almost all of the teachers at Glenville had at least the introductory sessions in the use of CL, and about half of the faculty used CL regularly in their classrooms.

The catalyst for the commitment to CL at Glenville Elementary stemmed largely from the efforts of one fifth grade teacher. This teacher had participated in the original CL staff development sessions and the advanced classes and had become a session leader. She also co-authored a book on CL and continues to provide staff development for both Greenwich and other school districts. At Glenville, she uses her extensive expertise and experience with CL to help colleagues implement CL in their classrooms. Teachers indicated that they rely on her frequently for advice and assistance. Glenville's CL program has received national recognition and serves as a demonstration site for visitors.

With the Johnson and Johnson model, the emphasis is on developing the students' social and academic abilities and to help them work harmoniously with others. The development of these skills becomes a major part of the teachers' objectives when planning CL lessons. The notion held at Glenville was that CL activities do not happen in a vacuum (i.e., "We will do a CL project every Friday afternoon"), but rather that the entire classroom and school environment should support productive collaboration and harmonious interactions. Although the entire school was not fully engaged in creating this CL environment, our sense was that there was little to inhibit its development within individual classrooms.

Services for Gifted Students

The district's commitment to gifted students was extremely strong. Greenwich boasts the longest on-going program for gifted education in Connecticut with over 30 years of experience in this area. The funding for gifted education was part of the regular education budget. Therefore, it was less vulnerable to the recent state budget cuts from

which many gifted programs suffered. The district's commitment to staff development in gifted education was equal to that in CL. Several workshops and classes in meeting the needs of gifted learners had been provided over the years, and most teachers had participated in these.

At Glenville, the teacher in charge of coordinating services for gifted students had at one time been the district's gifted education facilitator. Having a teacher with this level of expertise was a real asset to the Glenville program. In addition to his knowledge of gifted students, he was also involved in the use of cooperative learning.

Services for gifted students at Glenville were, by and large, individualized to match student needs. The kindergarten, first and second grade gifted students were usually served in their regular classrooms; however, greater differentiation was available for those students who required it. There were three "strands" of services. The first was for students who had been identified as gifted through their performance in a specific subject area (i.e., math or science). These students received curriculum differentiation within their regular classroom and had resource room classes in their area(s) of strength. The gifted coordinator worked with identified students in both settings to ensure that their needs were addressed.

The second strand was for students who were identified as gifted in the visual or performing arts. We were told that this strand was not in full operation district wide. However, with the strong regular program in art and music these children did have the opportunity to express themselves. The third strand was designed for students with outstanding intellectual aptitude, those in the top two percentile of measured IQ scores. These students came to the resource room for special activities and intellectual enrichment. It was possible for a youngster to receive all or any part of these three levels of service, based on individual needs.

Within the resource classes, the curriculum was both accelerated and enriched. An emphasis on creative and analytical thinking permeated the lessons, and content

was structured to allow students to examine ideas in depth. For the students in the third strand (the top 2 percentile), time was spent on the pursuit of individual interests as well as on teacher-directed learning. In addition to the resource program, the gifted coordinator also team taught with the regular class teacher to provide differentiation within this setting and served as a consultant for the faculty on meeting the needs of their gifted students.

Observations of CL at Glenville

During our visit, we observed CL lessons in heterogeneous classes with mixed ability levels, as well as in classes of students with high abilities. In order to look at the effects of CL on gifted students we will look at these settings separately.

CL in Mixed Ability Classes. The first lesson we observed was a fifth grade social studies class. The students worked in groups using latitude and longitude to locate various places on their maps and globes. The groups were formed by the teacher to include high, middle, and low ability students. We learned later that the tasks which she had assigned each student had been based on their ability level, with the more difficult tasks going to those students who could handle them.

The social skills on which the students were working included using "12 inch" voices, using names of students when speaking to each other, and offering praise to fellow classmates. Each group member had a role to play within his/her group, and one person was specifically assigned to be the "designated praiser." Before the lesson started, these roles were reviewed and students discussed the types of comments which might be appropriate (i.e., "That was a good idea, Samantha. Thank you for sharing."). As we observed during the course of the lesson, students did, in fact, remember to praise each other. Although it sometimes sounded a bit artificial, such practice provided a nice contrast to classrooms where student-to-student interactions can be less than positive.

At the conclusion of the lesson, each group was asked to evaluate how they had functioned. The students seemed to be able to do this with a very realistic view. They rated their own group dynamics very similarly to how we would have rated them based on our observations. This self-reflection seemed to be important to help the students know where and how they could improve on socialization skills:

We were told that this type of social evaluation usually occurred once every few weeks (as a new socialization skill was being practiced). Less emphasis was placed on the evolution of the academic task, however, and we noted that one group had reversed latitude and longitude and had therefore made several mistakes on their map locations. This could be corrected when the work was checked and rectified in further encounters with these concepts.

In addition to the fifth grade CL class, we observed CL in two unique and creative applications. Both of these involved teacher collaboration, one across grade levels, and the other between the gifted coordinator and a third grade teacher. In the first setting, we observed a collaborative third and first grade reading lesson. At the beginning of the year, the students in these classes had been paired, one third grader with one first grader. These "buddies" became reading partners once a week. The pattern alternated week to week with one week the third grader reading a story to the first grader, and the next week the reverse. In addition to the weekly reading day, the classes collaborated on other activities such as parties and field trips.

The day we observed, the first graders were reading to their third grade buddy. The social focus of the lesson was listening to your partner. At the conclusion of the session, the children evaluated their performances. Each child first selected a "happy," "neutral," or "frowny" face for his/her individual listening, and then selected linked faces to represent their paired efforts. This was an interesting and thoughtful evaluation.

In the next lesson, the gifted coordinator and a third grade teacher collaborated on a math activity. The students were placed into nine "somewhat" random CL groups

as the teacher dealt out a deck of cards. This was "somewhat" random in that the cards had been arranged so that one gifted math student would be placed on each team. This manipulation, however, was not noticeable to the students or observers. We had to ask later how it had been accomplished.

The topic of the lesson was logic problems and the use of a matrix to organize information so the problem could be solved. After a brief review, the groups were given the task of developing their own problem and accompanying matrix. This was a very sophisticated task, and we wondered how the students would do. They did beautifully! The gifted students had had considerable practice with this activity and were able to guide their groups through the process quite successfully.

Once again the lesson concluded with a self-evaluation of the social skills, 12 inch voices, listening, and encouraging. The groups showed their self rating through thumbs up for good, thumbs down for needs improvement, and thumbs sideways for unsure. These self-evaluation portrayals were consistent with our observations.

CL in High Ability Classes. We observed an accelerated math lesson in the gifted resource program. The fourth grade students were working with a computer program called *The Hot-Dog Stand* by Sunburst. In this program, students complete a simulation of running a concession stand at the high school. Based on several variables, the groups made ordering and pricing decisions. The goal, of course, was to turn a profit. The students were very engaged in this program and each fulfilled his/her role in the group. There was less emphasis on the social skills and we were told later that this was because these students were very accustomed to group work and did not need to have the formal reminders. This certainly seemed to be the case.

Points of View on CL

In order to understand the impact of CL on gifted students, we spoke with administrators, teachers, and students.

Administration. We met with the Program Administrator for Staff Development who had initially arranged for introduction of cooperative learning to the district, the school principal, and the vice-principal. The district's commitment to CL was clear, but we also learned in our conversation with the Program Administrator that she was personally committed to CL. When we asked her if CL was a teaching strategy or an educational philosophy, she paused. Her response was that it was often implemented like a strategy, but that ideally it was a philosophy which shaped the entire school. Her knowledge of CL was extensive, and she had authored and co-authored articles and a book on the topic.

The school site administration was less actively committed to CL. The principal described himself as somewhat "laissez faire" in his leadership style. He felt that he had a strong staff with knowledge and experience. He therefore saw his role as facilitating their ability to teach. He seemed to feel blessed at having the "on site" expertise in CL and in gifted education, and encouraged the innovative practices that emerged from this. Our sense was that a thoughtful teacher could attempt almost any new initiative with clear support in this school. The vice-principal collaborated with this view, and together they seemed to be a harmonious team.

Teachers. The teachers with whom we spoke were veterans who had been teaching for several years at Glenville. They were committed to the use of CL and saw it as an important teaching method. They indicated that it had changed their way of teaching and that it allowed them to work with both students' strengths and students' needs. The socialization aspects of CL were seen as critical to helping students grow into productive citizens. When we asked how they attempted to meet the needs of gifted students in mixed ability CL groups, they were able to offer several strategies for differentiating the level of tasks each student received. They attributed this knowledge to years of experience, staff development, and to the help they received from their resident experts in both gifted and CL.

The teachers said that they were allowed a lot of freedom to try different strategies, and that all they needed were ideas and the energy to move forward. We asked what types of lessons worked best with CL and were told that content with "parts," activities with natural roles, lessons that involved manipulation, collection of information, and problem solving all lent themselves to CL. Several teachers went on to say that realistically, most lessons could be taught with CL strategies.

The role of social skills was emphasized in the classes, and the teachers felt that it was appropriate to structure some CL lessons with a primary focus on interpersonal skills. They felt this would be needed for some groups of students and that more time was spent on these skills early in the year or when groups were changed. The size of the groups also changed by grade level. K-2 students often worked in pairs, while older students worked in groups of three to four.

Students. The students were very articulate about their perceptions of CL. These perceptions differed somewhat depending on whether the student had been identified as gifted or not. The gifted students overwhelmingly supported the use of CL in their high ability classes. They had virtually no negative things to say about this setting. They indicated that it was easier when everyone was working at the same "speed of ideas" and had the "same level of motivation."

In the heterogeneous setting gifted students mentioned some difficulties. Their frustrations centered on feeling slowed down. Their comments included: "It's hard when you know you could go a hundred times faster," "Sometimes you have to really put the brakes on," and "I don't like it when everyone is always bugging me." They had mixed feeling about their role as a helper. One youngster summed it up this way, "I think it's kind of nice to be helpful, but it's a big responsibility. I like being looked up to, but sometimes it is frustrating."

In addition to these concerns, they indicated that dealing with students who talked too loud or didn't want to do their work was difficult. They also said that

sometimes other students resented them for trying to keep the group working. One highly gifted third grader said that his biggest frustration was "when you have a problem to figure out, and you know the answer, but your group also knows the answer . . . only they know the WRONG answer, but they won't listen to you, and you can't explain it to them because the proof of it is only in your mind!"

The students we talked with who had not been identified as gifted saw the major difficulties with CL as being when group members did not get along. These students were strongly supportive of CL and indicated that they liked learning this way and being able to get help when they needed it. Both groups said that it made learning more fun.

When we asked both groups of students what their reaction would be if the school board decided to do away with CL their response was unanimous. They all indicated that this would be unacceptable. Their arguments for keeping CL included: "It makes learning fun," "we need to be able to work together," "you can't run an office alone," and "they [the school board] should just try it [CL] themselves." A third grader who was part of the third/first grade reading pairs looked quite startled by the suggestion that CL could be eliminated and asked, "How would the first graders ever learn to read?" One fourth grader said, "I would tell them, if I thought they would ever listen to me, that CL is important because it teaches you how to get along in life."

CL for Gifted Students. The innovative collaborations across grade levels and between gifted and regular classes seemed to hold a great deal of promise. The teachers were sensitive to the needs of gifted students and actively attempted to differentiate tasks within the CL groups. This differentiation, however, had to be specifically planned and would not happen spontaneously. The provision of additional services for gifted students further supported their academic success, and, in this setting, CL was a natural fit.

Summary

Glenville Elementary School has a strong program which capitalized on the best of cooperative learning and gifted education. This was possible, in part, because of the quality of the staff and the presence of resident experts in both areas. The district has been instrumental in providing ongoing staff development and support, and the principal encourages his staff to be creative and innovative. These factors, combined with parental support, have provided an environment which fosters success.

Mary Taylor Middle School and Camden-Rockport High School

Description of Camden Schools

Mary Taylor Middle School and Camden-Rockport High School were located in adjoining buildings in Camden, Maine. Camden is a small coastal town nestled between the harbor and mountains, and its primary industry is tourism. The town, having capitalized on the beauty of its setting, attracts visitors throughout the spring, summer, and fall. The community is strongly supportive of education, although the majority of households (70%) did not have school-age children. The town was described to us as being "yuppie," perhaps because of the shops and restaurants which seem to cater to affluent customers. About 35 percent of the community is considered to be blue collar workers while the remainder is middle and upper middle class. The population is almost entirely Caucasian.

The school district was quite small, with one elementary school and an adjoining middle/high school. There were only 120 teachers in the entire district. The size of the district and the fact that the turnover rate of faculty was very low meant that everyone within each school seemed to know one another. There was a high level of trust and autonomy among teachers and administrators. The notion that "I am a professional and can make my own decisions," seemed to permeate the discussions with the teachers, principals and superintendent. This was not a district where ideas were mandated. The

superintendent's vivid analogy for his "mandating" of programs was to at times tell teachers to, "Fish or cut bait!"

Cooperative Learning

The Camden schools had informally adopted the Kagan model of cooperative learning. Although there was interest among many faculty members, the initial involvement with CL was primarily a result of the interest of one teacher. The teacher who sparked this interest was the coordinator for the gifted programs, and her original curiosity about CL stemmed from how it might be used with gifted students. In the summer of 1989, the district sent her to California to attend a week-long course at the Spencer Kagan Institute. Upon her return, she shared the information on CL with the entire district through a one day "awareness" session. All of the district's 120 teachers participated in these introduction sessions.

In the summer of 1991, the same teacher returned to California to participate in an advanced workshop on leading staff development in CL. This experience was also transferred to the district through the establishment of ongoing staff development opportunities. In addition to the classes offered in the use of CL, a biweekly CL support group and newsletter were organized. Within each newsletter, a different structure was reviewed. This allowed teachers to refresh their understanding of the structure and see some examples of its application to a content area. The superintendent indicated that he believed in this staff development model -- in providing opportunities for key district people to learn from the "experts" and to bring information back to the district so others could benefit, as well.

With the Kagan CL model, the focus is on "structures" which assist the teacher in organizing her/his pedagogical approach to the content. The structures allow students to interact with each other and the curriculum in a variety of ways. The curriculum content remains the same; however, the process of learning changes. One "structure,"

for example, is the "think-pair-share." Students are asked to think about a question or concept, discuss it with their partner(s), and share their conclusions. This means that teachers who use this model must first feel secure in their content knowledge in order to select and use appropriate CL structures. We were told that in the Camden-Rockport middle and high schools approximately 20-30% of the teachers used CL on a fairly regular basis.

Services for Gifted Students

The program for gifted students was approximately ten years old at the time of our visit, and most of the district's teachers had participated in staff development on the education of gifted students. Approximately 10% of the Camden-Rockport students qualified for the gifted program based on a combination of achievement, IQ scores, and teacher rating scales. Students identified as gifted in the middle school were ability grouped for math at all three grades: 6th, 7th, and 8th. However, differentiation in other content areas varied by grade level. In the 6th grade, gifted students had advanced science; in 7th grade, writing was the focus; and in the 8th grade, advanced social studies was offered. This was done for several reasons: the teaching staff was small and classes could not be offered in all subjects, and there was a desire to avoid a gifted track in all subjects.

One high school seminar, "Ascent of Man," was offered at the 10th grade level for students identified as gifted. The high school students could also take accelerated math classes. Otherwise, Advanced Placement or honors classes were available in most subjects, and these replaced the formal "gifted" program.

The content in the classes for high ability students in both schools focused on a combination of acceleration and enrichment. The teachers worked to develop complex ideas and to stimulate students' thinking about the content. Cooperative learning was

used in these classes on a regular basis to stimulate student interaction and participation.

Observations of CL at Mary Taylor Middle School and Camden-Rockport High School

We primarily observed CL within the classes for gifted and high ability students. However, we did observe one class of mixed ability students. In order to look at how gifted students' needs were met within these settings, we will first summarize the use of CL in the heterogeneous class.

CL in the Mixed Ability Class. The seventh grade world geography class was working with the "Voyage of the Mimi" video series. The Mimi series is engaging and is fairly sophisticated. In fact, many programs for gifted students use this as the basis for their geography studies. The CL groups had been set up as heterogeneous, with a high, two middle, and one low achieving student in each cluster. We observed them reflecting on the video tape session they had watched the day before about which they had written a brief summary statement.

Each group member had an assigned role, and these roles rotated with each Mimi episode. The groups also had to answer the worksheet questions provided by the teacher (one set per group). Next, they had to use the "question matrix" to develop new questions based on the Mimi. The question matrix offered question stems like "what would happen if...", and "why might...". The students seemed to enjoy this activity.

CL in High Ability Classes. We observed several classes for gifted or high ability students. At the 7th grade level, we spent time in writing and math classes. Both classes were "discovery" oriented. In the writing class, students were examining the dilemma of dangling and misplaced modifiers. They had several sentences which could be misinterpreted because of misplaced modifiers (ex: "I shot a tiger in my pajamas"). In the course of the lesson, these sentences were rewritten to clarify their meaning, and the general principle of the placement of modifiers was established.

The math class was working on discovering the "golden rectangle." They worked in groups to identify and measure rectangles which were the most "pleasing" or "perfect." Then they calculated the proportions of these rectangles and developed a rule for creating the "perfect" rectangle. They did, in fact, come up with the proportions for the "golden rectangle." In both of these lessons, the students were highly engaged in their work.

At the 9th grade, we observed the Humanities/World History class. This was an advanced class, but it was available to any student wishing to participate. We observed the students create a Utopia. Each group structured its Utopia and justified why it would work. Then they compared and contrasted their creations with Sir Thomas More's Utopia.

In the 11th grade class, we observed honors chemistry. In this class, the topic was "combining volumes." The student groups solved problems and then presented their solutions to the class.

The objectives of all of these lessons seemed to be primarily academic, but we were told that there were social goals as well. The social goals included fostering cooperation among students, encouraging group participation, and developing listening skills.

Points of View on CL

In order to better understand the impact of CL on gifted students, we need to look at the perspectives of administrators, teachers, and the students.

Administration. We were able to interview the high school and middle school principal, as well as the system's superintendent. Their responses were very similar. All were supportive of cooperative learning and saw it as a way to address student needs, particularly in heterogeneous settings. They were quite knowledgeable in the theory and practice of CL. Although the use of CL was not mandated, the

administrators indicated that they encouraged teachers to try these strategies. They commented that their evaluations looked at whether teachers could use a variety of teaching strategies, including CL, and this conveyed the message that CL was important.

The level of trust among the district faculty was evident in the interaction styles of teachers, principals and the superintendent. All seemed at ease in questioning and discussing ideas. We remarked on this and were told that this attitude was fostered. The superintendent frequently sent articles of educational interest out for thought and comment, and the principals and teachers shared articles, newsletters, etc. New ideas seemed welcomed by everyone, but ideas would not be adopted without careful review and debate.

The administration was committed to gifted students, but this was largely embedded in their overall commitment to meeting the needs of all students. The high school was, in fact, moving toward more heterogeneous classes, but would retain their strong honors/AP program. The schedules at the high school and middle school had also been changed to 85 minute classes which encouraged teachers to use CL strategies as opposed to straight lecture.

Teachers. The teachers we talked with were committed to the use of CL. They had all been teaching for several years and indicated that they had seen teaching fads come and go. They believed that cooperative learning was here to stay. They agreed that it was one strategy that would have lasting impact. When asked why they felt this way, they indicated that it had changed their relationships with their students and had revitalized their classes. They felt that their work was more rewarding because of CL. One teacher indicated that he had been considering leaving teaching but that, with his shift to cooperative learning, he had become re-committed to education.

We did not observe much "team" or "class" building and so asked specifically about this. The teachers said that more "team" building had been done at the beginning

of the year when teams were initially formed. A few teachers felt that they should still do more of these activities. When we asked if this "conversion" had come to them instantly, we received different answers. For some, it was the logical extension of the group work they were already using and so it was natural. Others, however, indicated that they were skeptics and that it had been difficult for them to make the change. These teachers had watched their colleagues, had listened to their students' reactions, and had then decided to "take the risk" of changing their own teaching styles. All of the teachers agreed that having a "resident expert" to guide and support them was invaluable.

When we asked how they differentiate among students of varying ability levels in CL groups, they indicated that they tried to modify the content and role assignment. They said that the most difficult situation was when there were only one or two really bright kids in the class. Then they felt these students received the "short end of the lesson."

Students. We interviewed groups of students who were identified as gifted learners as well as those who had not been so identified. Their responses indicated somewhat different perspectives on CL. The high school students who were identified as gifted brought up their concerns about group grades and the lack of motivation of teammates. These concerns centered around the use of CL in mixed ability classes. In these classes, they often felt that the responsibility for the group rested with them. One student, however, indicated that he did not mind this at all. "I *like* being in charge!" he said.

These students had different concerns about CL in their advanced classes. In the advanced classes, it seemed that the problem was the opposite -- almost too much motivation and participation. Overall, however, they said they loved CL in classes where all the students had similar abilities and motivation. One student said, "It's the

attitude, not the level of knowledge," that seemed to make the difference in these settings.

The comments of the students who had not been identified as gifted provided a sharp contrast. They felt that CL "lightens the load", and that they could get more points of view from other students. When we asked what they do when assertive students "take over" the group, they said, "If they want to, let 'em," and "It's OK as long as they know what they are doing." These students also felt that they could often learn better from other students than from the teacher, and that CL made school more fun.

Middle school students did not have the problem of group grades; they remarked that teachers usually gave individual grades. They also felt that the benefits of CL included the chance to help others and to get help when you need it. The gifted students were extremely enthusiastic about CL in their homogeneous classes, but also felt it was fine in their mixed ability classes.

All of the students we interviewed came down strongly in support of CL when we asked them what they would do if the school board decided to eliminate its use. They gave CL their overwhelming support and indicated that they would fight such a change. One youngster replied, "I'd say, 'if you want to follow me around and feed me what I need to know for the rest of my life, OK, go back to the old way.'" The students pointed out that the jobs they would have would require cooperation and that CL was preparing them for these experiences.

CL for Gifted students. The Kagan structures seem to give teachers an additional organization strategy with their content. The gifted students clearly enjoyed this, and although there were some reservations within the heterogeneous setting, when used in homogeneous classes the students were unanimously supportive.

Teachers also found it difficult to differentiate for gifted students in heterogeneous CL groups. Their strategies for this included assigning differing roles, using open-ended tasks, and encouraging higher levels of thinking within group tasks.

The strong focus on curriculum and active participation seemed beneficial to gifted students.

Summary

The Camden school system had used CL as a teaching strategy to increase student participation and learning. It was initially seen as a way to meet the needs of students in the program for gifted learners. It is now seen as a strategy for all learners -- and as a vehicle to meet diverse student needs in heterogeneous classes. Teachers and students, however, agreed that the academic needs of gifted learners were not as easily met using CL in heterogeneous settings as in homogeneous settings. Overall, the district is highly committed to CL and will continue to support its use.

Pinehurst Middle School

Description of Pinehurst Middle School

Pinehurst Middle School is located in a small North Carolina town perhaps known best for its golf resorts and retirement communities. The community ranges from affluent to economically disadvantaged, and the educational background of the population is equally diverse. These community demographics were reflected in the student body, which was 62% Caucasian, 37% African American, and 1% Native American or Asian American. The 406 students ranged in grade level from 4th to 8th; however, they were organized into a lower (4-5) and an upper (6-8) school to allow teachers to work with the middle school configuration.

In addition to the main school building, the campus of Pinehurst Middle included several buildings which housed different facilities: a gymnasium, cafeteria, classrooms for students with severe disabilities, and a storage garage. The original school was built in 1928 and had been replaced in 1992 with a modern building. Only the old cupola remained.

Cooperative Learning

Pinehurst Middle had adopted Slavin's CL model, using Team Assisted Instruction (TAI) with math at the fifth grade and Team Games Tournaments (TGT) with other subjects. Many of the teachers also used other CL strategies for group work. The primary function of CL at Pinehurst Middle seemed to be providing students with active motivational learning experiences, and there was less emphasis on the role of socialization in CL activities.

Cooperative Learning was introduced to the school by the teacher of academically gifted students. Her background in CL came from Johns Hopkins University, and she had been using CL for over 15 years. This teacher was considered to be an expert in the use of CL by her colleagues. Many colleagues had participated in the workshops she conducted. Several introductory and advanced classes in cooperative learning had been sponsored by the school system, which provided a consultant from Johns Hopkins University. The school system also sent some teachers to Johns Hopkins for classes. The principal was planning to expand Team Assisted Instruction (TAI) to other grades, and he intended to initiate the Cooperative Integrated Reading and Comprehension (CIRC) reading program.

Services for Gifted Students

At one time, Pinehurst Middle had been the magnet center for gifted students in the district. At the time of our visit, however, gifted students were served in their home schools. Clearly, though, Pinehurst Middle had remained strongly committed to meeting the needs of gifted students. Over half of the faculty members were either certified to teach academically gifted students or were working toward this certification. The principal indicated that she encouraged all the teachers to complete the gifted certification program because she felt that it enhanced a teacher's ability to appropriately challenge all students.

Students identified as gifted were placed in a literature/language arts class which met each day. The curriculum was fairly intense with readings being completed as homework and class-time being spent on discussion and analysis of the material. Readings were selected around themes, and the theme in progress was "power." Most units culminated in student projects, and several of these were displayed around the room.

Services for students with advanced math needs were less well developed. The introduction of the self-paced TAI was done, in part, to allow able students to progress more quickly in math. In the seventh grade, a few advanced math students took pre-algebra. With the inclusion of TAI, it was hoped that many more students would be prepared for early algebra. Advanced eighth-grade math students do enroll in algebra I.

Observations of CL at Pinehurst Middle School

We were able to observe the use of CL in classrooms with students of mixed abilities and in classes where the ability range was more narrowly clustered at the top. We also observed CL at each grade level, 4-8, and in several subjects including language arts, science, social studies, and math. In order to look at how gifted students' needs were addressed, we will first look at CL in heterogeneous groups and then look at CL in groups of highly able learners.

CL in Mixed Ability Classes. At Pinehurst, the fifth grade math program was taught in classes where students were not grouped by ability or performance. The differing academic needs of students were met through the adoption of the Team Assisted Instruction (TAI) program. We observed students working at their own rate and level of learning and progressing through their math curriculum on a self-paced schedule. This individualization allowed the more able students to make rapid progress, and a few youngsters had almost completed the fifth grade series by mid-year. When they completed their work, we were told that they would not be "held back."

The teams of students in TAI assisted each other by checking problems, drilling math facts, and offering peer-tutoring when possible. An eighth-grade student acted as a teacher's assistant during the math period. This student had elected to do this as his school service project, and his assistance as a role model and a tutor seemed invaluable. Student monitors checked work and assigned mastery quizzes when needed. All of this freed the teacher to work with small groups of students on specific math skills. In addition to the self-paced progression through the math curriculum, every three weeks the teacher provided math enrichment, where students focused on problem solving and mathematical reasoning.

The science classes were also taught using cooperative learning. These were structured more by small group work and/or lab partners. The curriculum was hands-on and students fulfilled specific roles (i.e. materials, recorder, clean-up, or reader). The emphasis seemed to be on functional roles rather than social roles. For example, there were no designated "praisers." In some cases, students selected their teammates; in others, the teacher assigned students to teams. When the teachers assigned students, the teams were intentionally made up of students with mixed abilities. At the upper grades, where the students had selected their own teams, we noted that most were single-gender and same-race groupings.

The seventh grade social studies class we observed used CL groups to complete a project on cultural differences among African countries. The groups shared materials and read the sections of the text out loud. The activity was creative and engaging; however, the pace of the activity seemed slow for the gifted students who frequently acted as the group's "teacher," responding to questions and explaining things to their teammates.

We also observed a Teams Game Tournament (TGT), with eighth-grade social studies students preparing for an end-of-unit test on the Revolutionary War. In TGT, team members quizzed each other to learn the information, and then competed against

students with similar abilities on other teams. This was highly motivational; the students were extremely "fired up" about trying to learn so that their team could win. The most able students were "coaching" their teammates on the material, and, although the task was certainly engaging, it was not especially challenging for the gifted youngsters. More difficult bonus questions, worth more points, helped challenge the gifted students.

CL in High Ability Classes. The language arts/literature classes we observed were made up of students who had been identified as gifted. These classes were rigorous and intellectually challenging. The students in the fourth grade class were engaged in CL groups where they compared ideas, debated, and analyzed material that they had read as homework. The topic was propaganda. The task was to first analyze the strategies used to promote sales, and then to design an advertisement campaign to "sell" a product of choice. When the products were presented, the other teams had to identify the propaganda strategy being used.

In the eighth grade literature class, students were comparing various current events articles about the environment. The purpose was to identify bias and to be able to locate words which were meant to "trigger" an emotional response. The teams split up into "expert" groups to focus on different material, and then returned to their teams to share their findings. For homework, each student was to write an essay establishing a position on the environmental needs of the planet and defending that position. These essays would be read by fellow team members to locate any signs of bias and identify the use of trigger words.

Points of View on CL

In order to understand the use of cooperative learning with gifted children, we need to look at the perspectives of the administration, teachers, and students.

Administration. The principal of Pinehurst Middle expressed her belief that students learn best when actively engaged, and that well-run classrooms allowed for

high levels of student involvement. She saw cooperative learning as an ideal way to stimulate and motivate students. Her strong commitment to gifted education stemmed from her conviction that gifted students needed to be challenged, and that such students benefited from being in classes with their intellectual peers. She commented that many of the educational strategies used in gifted programs could benefit all children, and thus, she was encouraging her faculty to pursue gifted certification.

The principal felt that use of cooperative learning at Pinehurst was significantly enhanced by the presence of a CL "master" teacher. She said that the other teachers relied on this person for help with difficulties as they tried to initiate CL in their classes. There had also been a ripple effect from the growing use of CL, which had somewhat changed the nature of the school. Teachers were doing more teaming and joint planning. The evaluation of teaching had shifted toward more formative assessments with an emphasis on students' learning behaviors. School decision making had become more collaborative with the growth of the concept of teacher ownership.

When asked what advice she might share with others about CL, she responded that, to make CL work, the teachers should be participating voluntarily and initial system-level support for intensive staff development was necessary. She again stressed the importance of a master teacher on site to assist teachers as they began using cooperative learning techniques. The principal saw the use of CL at Pinehurst Middle expanding to include additional grades for TAI and the incorporation of the CIRC program.

Teachers. The teachers with whom we spoke were strongly committed to cooperative learning. They saw CL as a set of teaching strategies which motivated students. The difficult part of CL, from their perspective, was the advanced planning necessary for lessons to proceed effectively. They reported that not all of their colleagues were experiencing success with these methods, and that, at least initially, it

was tricky getting classrooms organized around student participation without slipping into chaos. In this domain, having an "on-site expert" was invaluable.

While all of the teachers with whom we spoke were either certified or working toward certification in gifted education, we observed little differentiation for gifted students in their classes. The teachers indicated that they sometimes used bonus questions and challenge words as options but that, for the most part, the students were taught together for science and social studies. As noted earlier, language arts and math were handled differently.

On the topic of group grades, the teachers expressed different strategies such as focusing on improvement, cooperation, and effort (e.g., turning in homework), combined with individual grades for content mastery. None of the teachers seemed especially comfortable with group grading; they said that this was something they were still working with.

One of the teachers had conducted a small research project on student completion of homework. She had compared homework completion rates for 8th grade social studies students under two conditions: a) when points were awarded to teams for completion of homework; and b) when no team rewards were given for homework completion. The students' homework completion rate with team rewards was significantly higher than when no teams rewards were involved. It seemed that team members were reluctant to let their work go unfinished for fear of disappointing their teammates.

Students. We talked with two groups of students: one group had been identified as gifted and another had not been so identified. Their reactions to CL were somewhat different. When asked what they liked about CL, the gifted students commented that they liked to help others, they liked time to share and talk, and that it was less boring than just listening to the teacher. The focus of the students who had not been identified as gifted was on receiving help. They said that it was nice to know that you weren't "just

alone" trying to answer questions, and that other kids could sometimes "tell it to you better" than the teacher. They also reported that CL was more fun -- and that when you worked with a group you usually worked harder.

Regarding the difficulties with CL, the groups expressed concern for students who were not participating. In some cases, they said students could not "make" each other do the work, and this created problems. They saw both pros and cons to working with friends and felt that this could go either way. The gifted students expressed mild concern over group grades, which they felt were sometimes lowered by unmotivated students.

We asked the group of gifted students specifically about the differences in CL when they were in their advanced language arts class as compared to their heterogeneous classes. Their responses were striking. There were no reservations about CL in the advanced class; students loved it. Everyone did his/her work and shared ideas. CL was seen by these students as "fantastic." When talking about cooperative learning in their other classes, the gifted students spoke of being helpers, and of feeling responsible for other students. They did not seem to resent this role, however, and indicated that their teachers need some support and that this was a good way to work things out. These children took these responsibilities to heart. One youngster summed it up this way: "When we do CL work in AG [academically gifted classes], it is less stressful because everyone shares the main responsibility so you don't have to carry it all."

In response to the question, "What would you do if the school board decided to do away with CL?" the students were united. They would not want to go back to the traditional "teacher talk" methods. Both groups concluded that they would invite school board members to visit the school and "see for themselves" how CL worked. They were strongly opposed to the idea that CL would be abandoned and said that they would not

hesitate sharing this with board members -- some of whom were personally known by the children!

CL for Gifted Students. TAI and TGT seem to be strategies which are possible to differentiate for students of varying ability levels. With TAI, gifted students in math can progress at their own pace. The TGT allows a teacher to offer challenge questions with extra points for bright students, thus giving them an added incentive to be "smart." These models focus on the curriculum pace and challenge to the benefit of gifted learners.

Summary

Cooperative learning at Pinehurst Middle was used effectively to engage students in the learning process. The students were highly motivated to learn, in part, because this reflected on their team's status and they did not wish to let teammates down. The principal and teachers were committed to the use of CL and relied on the presence of an "expert" teacher to help support these efforts. Although many of the teachers had special coursework in meeting the needs of gifted students, there was little differentiation provided within the heterogeneous CL groups. The gifted students in the advanced language arts class seemed to thrive in their CL teams and those in the TAI math program were also blossoming. The commitment continuing cooperative learning at Pinehurst Middle was strongly expressed by all.

Harford Heights

Description of Harford Heights

Harford Heights Elementary School is located in downtown Baltimore. The school draws from a working class neighborhood. Many of the families are just above the poverty line and other families are economically disadvantaged. The school's

student body reflected the neighborhood demographics, being primarily African-American, with a few Hispanic students, and virtually no Caucasian pupils.

The school was built in the 1970s to house 2000 students; it is the largest elementary school on the east coast. The building was organized into wings, which housed students from kindergarten to fifth grade. The classrooms were "open" on the corridor side and were only separated from each other by bookcase partitions. In spite of the large numbers of students and the open-building structure, the school was very orderly and calm.

The teaching staff was quite large, with over 90 full-time teachers. The faculty was organized into grade groups and four assistant principals assisted the school's principal with administrative duties. In addition to the K-5 students, Harford Heights housed several special programs. Head Start, Early Learning Demonstration Site, Child Find, and the Revolving Door were all located on this campus. Harford Heights also served as a teacher education site for the Morgan State University School of Education. The Morgan State students provide additional in-class support to the Harford Heights staff. During our visit, we observed only a very small part of the Harford Heights experience. We were able to observe three teachers, interview the principal, and talk with a group of students.

Cooperative Learning

Harford Heights had not adopted a schoolwide, formalized cooperative learning program. The principal said that approximately three quarters of the teachers used CL regularly and that cooperative learning had been used at the school for over eight years. The way CL was used, however, was more eclectic than with the adoption of a single model. In the three classrooms we observed, we saw Slavin's Team Assisted Instruction (TAI), a "think-pair-share" activity (Kagan), and group work that drew heavily

on the Johnson & Johnson model (with assigned CL roles and social objectives for the lesson).

This diversity of CL strategies may have resulted from the staff development that formed the basis of each teacher's introduction to CL. Staff development in CL varied among teachers. Some had formal classes at Johns Hopkins (the university where Robert Slavin works), while others had workshops given at the school that addressed several CL models. In addition, the principal told us that teachers were encouraged to read professional literature and to attend workshops in other CL strategies available through several off-campus options.

The size of the school, with its large and diverse faculty, may also have made it impractical to adopt a formal CL program based on only one model. In addition, it seemed that the underlying philosophy at Harford Heights might have influenced the more eclectic style of how CL was used. The belief that teachers are thoughtful, informed professionals who select the appropriate teaching strategies for each learning activity was shared by both the faculty and the administration. This message clearly indicated that it was not the school's policy to mandate the use of any single teaching practice.

Although the use of cooperative learning was not formalized into a schoolwide program, the concept of actively teaching students how to relate to others socially seemed to be a clear agenda of the school. We observed this in the interactions of the students throughout our visit. As we moved through the halls, we were formally greeted by students, and upon entering a class for the observation, students welcomed us. The principal stated that teachers were expected to model effective communication. The teachers with whom we spoke said that they focused on appropriate social skills in all areas of the curriculum. In our classroom observations, this emphasis was quite apparent.

Services for Gifted Students

Harford Heights had been the original site of the magnet gifted program Gifted and Talented Education (GATE) for Baltimore schools. This program bussed in over 300 students who were housed on the top floor, referred to as "heaven." The GATE program, at that time, was almost entirely made up of white, middle- to upper-middle-class students. When the gifted center was closed in 1991, the program was moved to individual home-base schools throughout the district. Harford Heights had maintained a strong commitment to developing the talents of highly capable students.

Although the GATE program did not officially begin until students were identified in the third grade, Harford Heights initiated its talent search much earlier. The children were observed and tested in kindergarten and first grade. The teachers and principal met to review each student's progress and individual needs. Those students who had the greatest potential learning capacity were placed in the pre-GATE second grade.

These second grade students were accelerated through an advanced curriculum similar to the GATE curriculum. The pre-GATE teacher, as well as the other second grade teachers, met frequently to discuss student placement needs. When appropriate, they reassigned students whose needs were not being met. This meant that when it was time for the third grade "formal" identification, the teachers had a very clear idea of which students needed GATE services. Formal identification for the GATE program was done using the 90th percentile on the CTBS-4, and/or on teacher recommendation.

The GATE curriculum was differentiated through content acceleration and the infusion of higher levels of complexity of ideas. Cooperative learning was also used in the GATE program with the TAI self-paced math program.

Observations of CL at Harford Heights

We were able to observe CL in three classrooms, and, as mentioned earlier, each used its own form of CL. We observed CL activities in both mixed ability classes

and classes where the students' ability levels were more homogeneously clustered at the top ranges. In order to look at how gifted students' needs were addressed, we will first look at CL in the heterogeneous setting and then at the classes for high ability students.

CL in Mixed Ability Classes. The fifth grade literature class was heterogeneously grouped. There were 37 children, whose reading abilities spanned several grade levels, but there were no GATE children in this class. The lesson focused on the book Fly Away Home, the story of a homeless boy and his father who live in an airport. After the story was read and discussed, students were asked to form their CL teams and design a shelter/home for homeless people with no limits placed on their creativity. Each team member had a role to fulfill such as reporter, materials, recorder, and the "have a heart" person who monitored and reminded others to cooperate and to use soft voices. The roles rotated among the group members.

CL in High Ability Classes. The TAI program was used for GATE math in the third, fourth, and fifth grades. In this program, student teams were formed to support individual, self-paced achievement. Each student progressed through the TAI math books at her/his own rate. The materials were supplemented with problem solving and hands-on activities every third week. One dilemma which had not yet been encountered, but which was just over the horizon, was what to do with the youngster who completed all the books before the end of the year.

With Slavin's TAI, students on each team assist each other by checking papers, explaining skills, and drilling math facts. These roles worked well when team members were relatively equivalent in learning capacity and achievement. When a student was far advanced of her/his class, there was less that other group members could do to give assistance. The teams received team awards on Friday to recognize the collective progress made by team members. Homework completion was factored into the team's weekly average, and this was a great incentive for students to get their homework done.

The pre-gate second grade math class we observed was using a "think-pair-share" (Kagan) CL structure. The student partners had to role the dice three times and add, or subtract the numbers to obtain maximum and minimum scores. One of the remarkable things we noticed about this class was the initial opening for the day. The students were guided in a "greeting-circle" to welcome their classmates to school and to share how they were doing. This overt teaching of communication and social skills, while not done in a formal CL lesson, was designed to enhance the students' ability to work together. This "class building" reinforced the role of cooperating among students.

Points of View on CL

Administration. The principal was firmly committed to talent recognition and development. He worked to ensure that youngsters with high potential were identified early and provided with a challenging learning environment. He remarked that he was preparing the next generation of African-American leaders and that the students under his care would be given every opportunity to grow intellectually and socially. The calm, respectful atmosphere of the school conveyed the sense that this place was safe, secure, and special: "It is a school, and we come here to learn and grow."

The principal also set the tone for teacher professionalism. He said that he liked to surround himself with intelligent, thinking people who were capable of making decisions. He acted as a catalyst for teacher improvement by sharing information of upcoming events and articles about current teaching ideas. His leadership style seemed to be one of consensus and trust building, and the faculty was expected to uphold its share of the responsibility. This style was likewise reflected in the classrooms we observed.

Teachers. The teachers viewed CL as a strategy to more fully engage students in learning. They stated that it was one of several strategies which they used to motivate their students. Each teacher indicated that his/her implementation of CL was

slightly different than he/she had been taught, but that these modifications were needed to address individual student needs. Teachers used individual accountability and group rewards to promote the cooperation among team members. The teachers felt that CL worked because students liked to talk with each other and also enjoyed giving and receiving help.

Students. The students were able to share both the pros and cons of CL from their experience. They told us that CL was great when the groups wanted to work together and everyone "tried hard," but that sometimes this did not happen and then CL was not so great. When we asked what the good things about CL were, students said: "You get to work together", "You can help others", "You can get help", "It's a better way to get ideas", and "It's more fun". The difficulties they saw revolved around students who wouldn't cooperate, and students who were "over-reactive," as one youngster put it.

When asked what they would do if the school board decided to do away with all CL in the schools, the students were emphatic that they would protest. The strategies of these third graders included petitions, marches, rallies, and boycotts! They would not passively allow CL to be abolished and were quite astute about ways to influence the political structure.

Summary

Harford Heights Elementary School was able to blend the use of CL with strong support for academic achievement of highly capable students. They did this through early recognition of abilities combined with grouping strategies to address students' learning needs. Cooperative learning was seen as a tool to enhance both the students' academic and social growth. The social agenda of the school was felt from top to bottom with high levels of professionalism among the faculty and explicit development of students' social skills. The teachers modified their application of cooperative learning to meet the needs of their students, and students, for the most part, enjoyed their CL work.

Results of the Cross Site Analysis

One goal of the project was to determine the pattern of elements critical to success at all five of the sites. While the sites varied with regard to the importance of the identified factors, some factors were rated as critical or very important for all five. These critical factors form a "core" which can be used to guide future CL programs where gifted students are involved. Figure 3 presents the ratings for each school on all of the factors. The critical factors are highlighted and identified with a "+."

The factors that varied in level of importance from site to site are also significant. These factors had a substantial impact at some schools. While they are not part of the "core" factors, they were essential for individual sites. A few of the factors did not seem to significantly affect the success of any of the programs. These factors are noted primarily because of their *lack* of influence.

Areas of Importance at All Sites

Six of the factors identified were rated as critical to the success of the cooperative learning program with gifted students at all of the sites visited. These critical factors were: (a) leadership of teachers; (b) staff development from "experts" in CL; (c) staff development from "in-house" CL master teachers who could provide staff development and on-going support; (d) the level of enthusiasm for the students; (e) the level of enthusiasm for the teachers for the use of CL; and (f) the use of CL in classes grouped by ability and/or performance.

The importance of the leadership of key teachers who helped to shape the CL program and continued to provide support and information cannot be overemphasized. At each site, one teacher (or a core group of teachers) clearly acted as catalysts for the CL programs. These teachers were all "master" teachers in the truest sense of the term. They were highly competent in the classroom. They had extensive expertise in

Figure 3
Key Factors Present in the Success of
Cooperative Learning Programs for Gifted Students*

	A (Critical)	B (Very Important)	C (Somewhat Important)	D (Little or No Importance)
1. Leadership				
Central Office Administration	..	..	.	
School Site Administration	...	.	.	
Teachers +		.		
Parents/Advocates			.	
2. Commitment to Gifted Students				
School Site			.	
School System	..		...	
3. Staff Development				
CL from "Experts" +		.		
CL from "in-house" +		.		
CL Support Strategies	..	.	..	
GT Student Needs	.	..		..
4. Availability of Resources				
Materials/Physical	..		...	
Expertise/Human	...	.	.	
Time for Planning		..	..	.
5. Attitude Within Classrooms				
Enthusiasm (Students) +		.		
Enthusiasm (Teachers) +	..	...		
Trust	...	.	.	
6. CL Differentiation for Gifted				
Class Grouped by Ability/Performance +		.		
Homogeneous CL Grouping (in regular class)		..	.	..
Individualized Assignments in CL Groups		..	..	.
Flexible Pacing/Self Pacing (TAI, etc.)		..		...
Self Selected Groups		.	.	...
Complexity			.	
7. Social Dynamics				
Overt Teaching of Socialization Skills	...		.	.
Assignment of "Social" Roles	..		..	.
Team Building		..	..	.
Class Building			..	...
Evaluation of Social Skills	..		.	..
8. Evaluation				

* Each dot (•) represents one school

+ shaded descriptions indicate factors that were critical or very important in all schools

CL and/or gifted education and were skilled in working with their colleagues.

Additionally, they had a high level of enthusiasm for their work.

These "expert" teachers voluntarily led the original training in CL at all sites. Therefore, these master teachers had moved to their leadership roles through the natural evolution of their abilities rather than by any formal appointment. Because of their extensive knowledge and experience, they were readily accepted by their peers, who looked to them for guidance and approval. Other factors identified as critical to CL success stemmed from the presence of these master teachers, including "in-house" staff development and the high level of enthusiasm for CL in teachers and students.

In addition to these factors, all five of the sites included CL as a teaching strategy in classes where students were grouped by ability and or performance level. We saw, for example, CL in use with an honors physics class at the high school level, with an accelerated math class in the elementary school, and with an advanced literature seminar in the middle school. At every site, CL was infused into the experiences of the gifted students within their advanced content classes as well as within their regular classes. The cooperative learning experiences within their advanced classes were seen as highly satisfactory to the students.

Areas that Varied in Importance

Other factors that varied in their rated level of importance included administrative leadership, commitment to gifted students, CL support groups, available resources, level of trust, strategies for content differentiation, and the role of social dynamics. While the role of teacher leadership was essential to all five sites, the influence of central office and school site administration varied. Each site clearly had some system-level support and some school-site support from the administration. The key leadership at the time of our visits, however, came from the teachers.

The overall commitment to gifted students as a special population of learners varied, but it was clearly higher at the school sites than at the district level. In the schools where specific services were available for gifted students, the teachers of these classes were also involved in CL. The coordinators of the programs for gifted students were very active within the schools helping to shape the CL program. At three of the sites visited, CL had been first introduced through the efforts of the program for gifted students.

Beyond the formal staff development in CL, a variety of strategies was used to provide ongoing support to teachers. These included support groups, newsletters, workshops, partner teachers, demonstration and observation lessons, and sharing of CL materials. Each of the locations relied somewhat on these communication devices, but the form and amount of these activities varied among schools. Staff development on the needs of gifted students was less prevalent than that for CL. Three of the sites had conducted fairly extensive staff development on the needs of gifted students, but two sites had very little staff development.

The level of resources, both material and human, varied; all of the sites, however, provided adequate resources. The level of trust evident at the schools was also influential in promoting program acceptance and implementation. Teachers indicated that the administration supported them, and students felt that their teachers were concerned about them. This seemed to create an environment conducive to the successful use of cooperative learning.

Several administrative strategies were used to differentiate CL activities in order to meet the needs of gifted students. These organization patterns included homogeneous CL groups in heterogeneous classes, individual assignments in CL groups, flexible pacing (e.g., TAI math), and self-selected groups. As noted earlier, cooperative learning was used in classes grouped by ability or performance at all sites.

Specific content and task differentiation strategies are listed in Figure 4 and will be discussed later.

The emphasis on group dynamics and the role of socialization in CL activities varied. In three of the programs, we observed the overt teaching of social skills as a critical part of the lessons. This was observed less often, however, at the other two sites. The assignment of specific student roles (e.g., praiser, encourager), the use of "team" and "class building", and the evaluation of social skills were not emphasized to the same degree in all the programs. When we asked the teachers about the direct teaching of social interaction skills, they responded that this was often emphasized at the beginning of the year when new groups were formed, or when a group seemed to be having difficulty. The programs using the Johnsons' model did seem to maintain a more continuous focus on the direct teaching of appropriate socialization skills.

When we looked at the evaluation strategies of the programs visited, we found that little evaluation (or sometimes none) had been completed. The lack of a formal evaluation is not surprising given that many, if not most, educational endeavors go un-evaluated. An evaluation could be of great benefit to the field, given the strength of the programs we visited.

Strategies used to Differentiate CL for Gifted Students

Figure 4 lists the strategies that we observed teacher using to ensure that the needs of gifted youngsters were met during CL activities. These strategies ranged from homogeneously grouping the gifted students together for some CL tasks to allowing students to pace themselves in the Team Assisted Instruction-Math classes. Although some of the strategies observed had been learned during staff development, many of the teachers informed us that they had "created " strategies in response to individual student needs.

Figure 4
Strategies to Differentiate for Gifted Students
Within a Heterogeneous Classroom

- Different tasks that vary in complexity
- Open-ended tasks where students set their own outcomes
- Assigning projects or tasks requiring creative solutions
- Assigning multi-phase tasks where some of the work is completed independently
- Assigning self-paced tasks like the Team Assisted Instruction in math
- Team Games Tournaments asking advanced bonus questions
- Expert groups that allow gifted students to work together
- Interest-centered groups, where students cluster around topics they choose
- Homogeneous groups within the heterogeneous classroom
- Jigsaw content materials with more difficult materials for gifted students
- Assigning the gifted students a specific role (i.e., teacher/facilitator)
- Cross-grade grouping, so younger gifted students can work with older students
- Team Games Tournaments competition among same ability performance levels
- Self-selected groups, where students can choose their own groups

Several of the strategies involved differentiation of the task assigned to the CL group. These strategies included: varying the complexity level for group members, giving open-ended activities that allowed students to set their own limits, allowing students to pace themselves through the content at their own learning rate (TAI-Math), involving students in the creation of products where several types of skills are needed, giving assignments requiring several phases and some independent components, asking more complex or difficult "bonus" questions (Team Games Tournament), and becoming "experts" within the CL groups to share particular knowledge.

Other strategies involved the organization of the CL groups. These strategies included: forming homogenous groups within the heterogeneous class, using the "jigsaw" method to cluster gifted students into sub-groups for some assignments, grouping students across grade-levels for some activities, holding cross-group competitions among students of the same ability/performance levels (TGT), and allowing students to self-select the group with which they will work. All of these ideas were used to meet the needs of gifted students in heterogeneous classrooms.

Discussion

Can the needs of gifted students really be met using the CL format? The answer to this must be yes. The programs we observed were clearly able to address the needs of their gifted learners. We also learned, however, that this was accomplished through careful planning and effort. This success with gifted students did not simply happen. Teachers indicated that they consciously mapped out strategies to ensure that the brightest students would not be bored or overburdened with group responsibilities. At all the sites, there was also a key person who was extremely knowledgeable about the needs of gifted students. This person was also critical to the development of the CL program.

One of the interesting results from the discussions with gifted students was their clear and overwhelming enthusiasm for CL in homogeneous groups. They loved using CL in their advanced, honors, and accelerated classes, and found virtually no drawbacks when CL was used in these settings. When the CL groups were heterogeneously formed, the gifted students were able to identify many areas of concern. Areas of concern included: having to act as the "teacher," doing "all" the work, being slowed down, receiving lower grades, doing "easy" stuff, and feeling uncomfortable when they appeared "too smart."

In spite of these concerns about CL in heterogeneous settings, the gifted students also felt that they made a real contribution. They seemed to take some satisfaction from their ability to act as "helpers." In every case, when we asked them what they would do if cooperative learning was going to be abolished, they responded with vigorous protests. The gifted students in this study clearly preferred CL to their experience of the "traditional" teaching/learning method. In spite of their concerns, this preference for cooperative learning in homogeneous settings was unconstrained; their preference for CL in any setting was strong.

The students identified as gifted, and those who were not voiced, enthusiastic support for the use of cooperative learning. They were clearly motivated to higher levels of involvement by their participation in a group. This may have been due, in part, to the active nature of the groups' participation, but was also attributed to the group's expectations. The students seemed not to want to disappoint their group members, and this motivated them to work harder.

The programs we visited had made a major commitment to the use of cooperative learning. This included support for intense staff development, planning time, and the long-term evolution of the CL program. The fact that teachers were allowed to participate voluntarily, and that "experts" were available on site to assist with CL implementation contributed much to the successes we saw. In addition, the planning for CL at these sites had addressed the needs of gifted learners from the beginning. Meeting the needs of gifted learners did not come as an afterthought. As a result of these efforts, the programs were successfully able to meet the needs of gifted students within the CL framework.

Conclusions

The results of this study clearly show that education for gifted students and cooperative learning can be successfully blended. Cooperative learning is a very

successful model in classes where students are homogeneously grouped by ability (honors, advanced, accelerated, and/or gifted classes) and should be used in these setting whenever it is appropriate. We also learned that, although there are some concerns about gifted students when CL is used in heterogeneous settings (i.e., pace and level of lesson, the role of gifted students, etc.), these activities are still beneficial. If additional services for gifted students are available, the benefits of CL seem to outweigh the drawbacks.

The need for overt and careful planning which does not overlook the needs of gifted students was critical to the success of the programs we visited. At each site visited, services for gifted learners continued along with -- and even contributed to -- the overall CL program. The early planning for CL included careful attention to personnel preparation to ensure that teachers had a solid base for the implementation of the cooperative learning model. The use of "expert" teachers who provided ongoing support and site-based staff development allowed the programs to grow.

Cooperative learning has much to offer to teachers and students, and this includes gifted students. Further collaboration and cooperative efforts between proponents of gifted education and educators espousing cooperative learning can, and should, lead to fruitful experiences for all.

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Appendix A

Cooperative Learning Checklist

COOPERATIVE LEARNING CHECKLIST

Susanne Nelson

Teacher _____ School _____

Grade _____ Subject _____ Date _____ Time _____

Observer _____

	Y	N	Not Obs.	Notes
CLASSROOM CLIMATE/ENVIRONMENT				
-rules/guidelines visible				
-team identities or nicknames apparent				
-reward system displayed				
-minimum discipline problems				
-celebration of accomplishments on walls				
-noise level appropriate for task				
-activity level appropriate for task				
-evidence of "team building"				
-evidence of "class building"				
Comments:				
CL STRUCTURE EVIDENCE				
-grouping				
heterogeneous by ability levels				
homogeneous by ability levels				
mixed genders				
mixed ethnicity				
-arrangement for group work				
-small group size				
Comments:				

LESSON STRUCTURE

	Y	N	Not Obs.	Notes
-lesson objectives are clear				
-social skill objectives in each lesson				
-academic skill objectives in each lesson				
-norms, rules of CL are given				
-materials for lesson appropriate, available, accessible				
-individual accountability				
-group accountability				
-smooth transitions noted				
-lesson sequence: teacher; CL; teacher				
-wrap up at end				
-rewards given and celebrations				
Comments:				
COGNITIVE LEVEL OF ACTIVITY OBSERVED				
-tasks yielding single right answers				
-tasks yielding multiple answers or uncertainty				
-uses a variety of skills (reasoning, predicting, intuitive thinking...)				
-evidence of higher level thinking skills				
-evidence of problem solving and decision making				
-content level low (below grade level)				
-content level high (above grade level)				
Comments:				

	Y	N	Not Obs.	Notes
TEACHER ROLE/BEHAVIORS				
-facilitator vs hovering or guiding the discovery				
-models effective communication				
-students have quick & efficient way to get into groups				
-moves around and monitors groups' progress				
-intervenes when necessary to assist in solving problems rather than taking on the problem for them				
-makes notes of individual/groups' accomplishments/attainments				
-uses notes to reteach/review social skills needed for group cohesiveness				
-evaluates progress made by groups (social, academic, and products)				
-low level questions asked				
-higher level questions asked				
Comments:				
STUDENT BEHAVIORS				
-fulfills assigned roles				
-each student actively contributing				
-uses a variety of skills (reasoning, predicting, intuitive thinking...)				
-checks for understanding of concepts				
-provides review if needed				
-on task				
-communication skills noted (listening, explaining, demonstrating, and conflict resolution...)				
-collaboration vs. competition dominates				
-students evaluate social; academic; & products of group				
Comments:				

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